

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Semester - I
Group A

Sr. No.	Course Code	Course Title	Weekly Teaching hrs			Evaluation Scheme			Credit	
			L	T	P	CA	MSE	ESE		
1	Mandatory	Induction Program	3 weeks duration in the beginning of the semester							
2	BTBS101	Engineering Mathematics – I	3	1	-	20	20	60	4	
3	BTBS102	Engineering Physics	3	1	-	20	20	60	4	
4	BTES103	Engineering Graphics	2	-	-	20	20	60	2	
5	BTHM104	Communication Skills	2	-	-	20	20	60	2	
6	BTES105	Energy and Environment Engineering	2	-	-	20	20	60	2	
7	BTES106	Basic Civil and Mechanical Engineering	2	-	-	50	-	-	Audit	
8	BTBS107L	Engineering Physics Lab	-	-	2	60	-	40	1	
9	BTBS108L	Engineering Graphics Lab	-	-	4	60	-	40	2	
10	BTHM109L	Communication Skills Lab	-	-	2	60	-	40	1	
TOTAL			14	2	8	330	100	420	18	

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Semester - II
Group B

Sr. No.	Course Code	Course Title	Weekly Teaching hrs			Evaluation Scheme			Credit
			L	T	P	CA	MSE	ESE	
1	BTBS201	Engineering Mathematics – II	3	1	-	20	20	60	4
2	BTBS202	Engineering Chemistry	3	1	-	20	20	60	4
3	BTES203	Engineering Mechanics	2	1	-	20	20	60	3
4	BTES204	Computer Programming in C	2	-	-	20	20	60	2
5	BTES205	Workshop Practices	-	-	4	60	-	40	2
6	BTES206	Basic Electrical and Electronics Engineering	2	-	-	50	-	-	Audit
7	BTES207L	Computer Programming Lab	-	-	2	60	-	40	1
8	BTBS208L	Engineering Chemistry Lab	-	-	2	60	-	40	1
9	BTES209L	Engineering Mechanics Lab	-	-	2	60	-	40	1
10	BTES210P	Mini Project	-	-	2	60	-	40	1
11	BTES211P	Field Training / Internship / Industrial Training (minimum of 4 weeks which can be completed partially in First Semester and Second Semester or in at one time).	-	-	-	-	-	-	Credit to be evaluated in III Sem
TOTAL			12	3	12	430	80	440	19

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Semester - III

Sr. No.	Course Code	Course Title	Weekly Teaching hrs			Evaluation Scheme			Credit
			L	T	P	CA	MSE	ESE	
1	BTBSC301	Engineering Mathematics – III	3	1	-	20	20	60	4
2	BTCOC302	Discrete Mathematics	2	1	-	20	20	60	3
3	BTCOC303	Data Structures	2	1	-	20	20	60	3
4	BTCOC304	Computer Architecture & Organization	2	1	-	20	20	60	3
5	BTCOC305	Digital Electronics & Microprocessors	2	1	-	20	20	60	3
6	BTHM3401	Basic Human Rights	2	-	-	50	-	-	Audit
7	BTCOL306	Python Programming	1	-	2	60	-	40	2
8	BTCOL307	HTML and JavaScript	1	-	2	60	-	40	2
9	BTCOL308	Data Structures Lab	-	-	2	60	-	40	1
10	BTCOL309	Digital Electronics & Microprocessor Lab	-	-	2	60	-	40	1
11	BTES211P	Field Training / Internship / Industrial Training Evaluation	-	-	-	-	-	50	1
TOTAL			15	5	8	390	100	510	23

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Semester - IV

Sr. No.	Course Code	Course Title	Weekly Teaching hrs			Evaluation Scheme			Credit
			L	T	P	CA	MSE	ESE	
1	BTCOC401	Design & Analysis of Algorithms	2	1	-	20	20	60	3
2	BTCOC402	Probability & Statistics	2	1	-	20	20	60	3
3	BTCOC403	Operating Systems	2	1	-	20	20	60	3
4	BTCOE404	Elective - I (A) Object Oriented Programming in Java (B) Object Oriented Programming in C++	2	1	-	20	20	60	3
5	BTID405	Product Design Engineering	1	-	2	60	-	40	2
		Elective - II							
6	BTBS405A	Physics of Engineering Materials	2	1	-	20	20	60	3
	BTCOE406B	Numerical Methods							
	BTHM3402	Soft skills and Personality Development							
7	BTCOL407	Design & Analysis of Algorithms Lab	-	-	2	60	-	40	1
8	BTCOL408	Introduction to Data Science with R	1	-	2	60	-	40	2
9	BTCOL409	Object Oriented Programming Lab	-	-	2	60	-	40	1
10	BTCOL410	Operating System Lab	-	-	2	60	-	40	1
11	BTCOF411	Field Training / Internship / Industrial Training Evaluation	-	-	-	-	-	-	Credit to be evaluated in V Sem.
TOTAL			12	5	10	400	100	500	22

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Semester - V

Sr. No.	Course Code	Course Title	Weekly Teaching hrs			Evaluation Scheme			Credit
			L	T	P	CA	MSE	ESE	
1	BTCOC501	Database Systems	3	1	-	20	20	60	4
2	BTCOC502	Theory of Computations	3	1	-	20	20	60	4
3	BTCOC503	Machine Learning	3	1	-	20	20	60	4
4	BTCOE504	Elective – III (A) Introduction to Research (B) Cyber Laws (C) Open Elective offered by other departments	2	-	-	20	20	60	2
5	BTCOE505	Elective – IV (A) Economics & Management (B) Business Communication	2	-	-	20	20	60	2
6	BTCOC506	Competitive Programming-I	1	-	2	60	-	40	2
7	BTCOL507	Database System Laboratory	-	-	2	60	-	40	1
8	BTCOL508	Machine Learning Laboratory	-	-	2	60	-	40	1
9	BTCOS509	Seminar	-	-	2	60	-	40	1
10	BTCOF411	Field Training / Internship / Industrial Training Evaluation	-	-	-	60	-	40	1
TOTAL			14	3	8	400	100	500	22

BTCOC501 - Database Systems: Content of this subject is updated. Pl. find below the updated content.

Semester I

Group A

Course Code	Course Title	Weekly Teaching hrs			Evaluation Scheme			Credit
		L	T	P	MSE	CA	ESE	
Mandatory	Induction Program	3 Weeks duration in the beginning of the semester.						
BTBS101	Engineering Mathematics - I	3	1	-	20	20	60	4
BTBS102	Engineering Physics	3	1	-	20	20	60	4
BTES103	Engineering Graphics	2	-	-	20	20	60	2
BTHM104	Communication Skills	2	-	-	20	20	60	2
BTES105	Energy and Environment Engineering	2	-	-	20	20	60	2
BTES106	Basic Civil and Mechanical Engineering	2	-	-	-	50	-	Audit
BTBS107L	Engineering Physics Lab	-	-	2	-	60	40	1
BTBS108L	Engineering Graphics Lab	-	-	4	-	60	40	2
BTHM109L	Communication Skill Lab	-	-	2	-	60	40	1
TOTAL		14	2	8	100	330	420	18

Semester II

Group B

Course Code	Course Title	Weekly Teaching hrs			Evaluation Scheme			Credit
		L	T	P	MSE	CA	ESE	
BTBS201	Engineering Mathematics - II	3	1	-	20	20	60	4
BTBS202	Engineering Chemistry	3	1	-	20	20	60	4
BTES203	Engineering Mechanics	2	1	-	20	20	60	3
BTES204	Computer Programming in C	2	-	-	20	20	60	2
BTES205	Workshop Practices	-	-	4	-	60	40	2
BTES206	Basic Electrical & Electronics Engineering	2	-	-	-	50	-	Audit
BTBS207L	Computer Programming Lab	-	-	2	-	60	40	1
BTBS208L	Engineering Chemistry Lab	-	-	2	-	60	40	1
BTES209L	Engineering Mechanics Lab	-	-	2	-	60	40	1
BTES210P	Mini Project	-	-	2	-	60	40	1
BTES211P	Field Training / Internship / Industrial Training (minimum of 4 weeks which can be completed partially in First Semester and Second Semester or in at one time).	-	-	-	-	-	-	Credit to be evaluated in III Sem.
TOTAL		12	3	12	80	430	440	19

Semester III

Sr. No.	Course Code	Course Title	Weekly Teaching hrs			Evaluation Scheme			Credit
			L	T	P	MSE	CA	ESE	
1	BTBSC301	Engineering Mathematics – III	3	1	-	20	20	60	4
2	BTCOC302	Discrete Mathematics	2	1	-	20	20	60	3
3	BTCOC303	Data Structures	2	1	-	20	20	60	3
4	BTCOC304	Computer Architecture & Organization	2	1	-	20	20	60	3
5	BTCOC305	Digital Electronics & Microprocessors	2	1	-	20	20	60	3
6	BTHM3401	Basic Human Rights	2	-	-	-	50	-	Audit
7	BTCOL306	Python Programming	1	-	2	-	60	40	2
8	BTCOL307	HTML and JavaScript	1	-	2	-	60	40	2
9	BTCOL308	Data Structures Lab	-	-	2	-	60	40	1
10	BTCOL309	Digital Electronics & Microprocessor Lab	-	-	2	-	60	40	1
11	BTES211P	Field Training / Internship / Industrial Training Evaluation	-	-	-	-	-	50	1
TOTAL			15	5	8	100	390	510	23

Semester IV

Sr. No.	Course Code	Course Title	Weekly Teaching hrs			Evaluation Scheme			Credit
			L	T	P	MSE	CA	ESE	
1	BTCOC401	Design & Analysis of Algorithms	2	1	-	20	20	60	3
2	BTCOC402	Probability & Statistics	2	1	-	20	20	60	3
3	BTCOC403	Operating Systems	2	1	-	20	20	60	3
4	Elective-I								
	BTCOE404A	Object Oriented Programming in Java	2	1	-	20	20	60	3
	BTCOE404B	Object Oriented Programming in C++							
5	BTID405	Product Design Engineering	1	-	2	-	60	40	2
6	Elective-II								
	BTBS405A	Physics of Engineering Materials	2	1	-	20	20	60	3
	BTCOE406B	Numerical Methods							
	BTHM3402	Soft Skills and Personality Development							
7	BTCOL407	Design & Analysis of Algorithms Lab	-	-	2	-	60	40	1
8	BTCOL408	Introduction to Data Science with R	1	-	2	-	60	40	2
9	BTCOL409	Object Oriented Programming Lab	-	-	2	-	60	40	1
10	BTCOL410	Operating System Lab	-	-	2	-	60	40	1
11	BTCOF411	Field Training/Internship/Industrial Training Evaluation (Credit to be evaluated in V Sem.)	-	-	-	-	-	-	*
TOTAL			12	5	10	100	400	500	22

Sr. No.	Course Code	Course Title	Weekly Teaching hrs			Evaluation Scheme			Credit
			L	T	P	MSE	CA	ESE	
Semester V									
1	BTCOC501	Database Systems	3	1	-	20	20	60	4
2	BTCOC502	Theory of Computations	3	1	-	20	20	60	4
3	BTCOC503	Machine Learning	3	1	-	20	20	60	4
4	BTCOE504	Elective-III (A) Introduction to Research (B) Cyber Laws (C) Open Elective offered by other departments	2	-	-	20	20	60	2
5	BTCOE505	Elective-IV (A) Economics & Management (B) Business Communication	2	-	-	20	20	60	2
6	BTCOC506	Competitive Programming-I	1	-	2	-	60	40	2
7	BTCOL507	Database System Laboratory	-	-	2	-	60	40	1
8	BTCOL508	Machine Learning Laboratory	-	-	2	-	60	40	1
9	BTCOS509	Seminar	-	-	2	-	60	40	1
10	BTCOF411	Internship/Industrial Training	-	-	-	-	60	40	1
TOTAL			14	3	8	100	400	500	22

Sr. No.	Course Code	Course Title	Weekly Teaching hrs			Evaluation Scheme			Credit
			L	T	P	MSE	CA	ESE	
Semester VI									
1	BTCOC601	Compiler Design	3	1	-	20	20	60	4
2	BTCOC602	Computer Networks	3	1	-	20	20	60	4
3	BTCOE603	Elective-V (A) Human Computer Interaction (B) Artificial Intelligence (C) Object-Oriented Analysis Design	2	1	-	20	20	60	3
4	BTCOE604	Elective-VI (A) Geographic Information System (B) Biology (C) Internet of Things	2	-	-	20	20	60	2
5	BTCOE605	Open Elective-VII (A) Development Engineering (B) National Social Service (C) Consumer Behaviour	2	-	-	20	20	60	2
6	BTCOC606	Competitive Programming-II	1	-	2	-	60	40	2
7	BTCOL607	(A) Mobile Application Development	1	-	2	-	60	40	2
		(B) Internet of Things Laboratory							
8	BTCOL608	Computer Networks Laboratory	-	-	2	-	60	40	1
9	BTCOF609	Filed Training / Internship / Industrial Training (Credit to be evaluated in VII Sem.)	-	-	-	-	-	-	*
TOTAL			14	3	6	100	280	420	20

Sr. No.	Course Code	Course Title	Weekly Teaching hrs			Evaluation Scheme			Credit
Semester VII									
			L	T	P	MSE	CA	ESE	
1	BTCOC701	Software Engineering	2	-	-	20	20	60	2
2	BTCOE702	Elective-VIII (A) Bioinformatics (B) Distributed System (C) Cloud Computing	2	1	-	20	20	60	3
3	BTCOE703	Elective-IX (A) Advanced Operating System (B) Computer Graphics (C) Bio-Metrics (D) Digital Image Processing	2	1	-	20	20	60	3
4	BTCOE704	Open Elective-X (A) Information Security (B) Business Intelligence (C) Blockchain	2	1	-	20	20	60	3
5	BTCOL705	Full Stack Development (LAMP/MEAN)	1	-	2	-	60	40	2
6	BTCOL706	System Administration	1	-	2	-	60	40	2
7	BTCOP707	Project-I	-	-	6	-	60	40	6
8	BTCOF609	Internship/Industrial Training	-	-	-	-	60	40	1
TOTAL			10	3	10	80	320	400	22

Sr. No.	Course Code	Course Title	Weekly Teaching hrs			Evaluation Scheme			Credit
Semester VIII (Scheme A)									
			L	T	P	MSE	CA	ESE	
1	BTCOE801	Elective-XI (A) Software Product Design (B) Quantum Computing (C) Software Testing (D) Big Data Analytics	2	1	-	20	20	60	3
2	BTCOE802	Open Elective-XII (A) 3D Printing And Design (B) Robotics (C) Advanced Database Techniques	2	1	-	20	20	60	3
3	BTCOE803	Open Elective-XIII (A) Virtual Reality (B) Deep Learning (C) Elective offered by other dept.	2	1	-	20	20	60	3
4	BTCOP804	Project-II	-	-	8	-	60	40	8
TOTAL			6	3	8	60	120	220	17
Semester VIII (Scheme B)									
1	BTCOF805	Industrial In-plant Training	-	-	18	-	120	180	9
2	BTCOP804	Project-II	-	-	8	-	60	40	8
TOTAL			-	-	26	-	180	220	17

Teaching & Evaluation Scheme for Second Year B. Tech. Civil Engg.

Semester- III										
Course Category	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				Credit
			L	T	P	CA	MSE	ESE	Total	
BSC 5	BTBS301	Mathematics – III	3	1	-	20	20	60	100	4
ESC 8	BTCVES302	Mechanics of Solids	3	1	-	20	20	60	100	4
PCC 1	BTCVC303	Building Construction & Drawing	2	1	-	20	20	60	100	3
PCC 2	BTCVC304	Hydraulics -I	3	1	-	20	20	60	100	4
PCC 3	BTCVC305	Surveying	2	1	-	20	20	60	100	3
HSSMC2	BTHM306	Soft Skill Development	2	-	-	50	-	-	50	Audit
LC 1	BTCVL 307	Solid Mechanics Laboratory	-	-	2	20	-	30	50	1
LC 2	BTCVL 308	Hydraulics-I Laboratory	-	-	2	20	-	30	50	1
LC 3	BTCVL 309	Surveying Laboratory	-	-	2	20	-	30	50	1
Internship	BTES210P	Internship –I Evaluation (From Sem II)	-	-	-	-	-	50	50	Audit
Total			15	05	06	210	100	440	750	21

Semester- IV										
Course Category	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				Credit
			L	T	P	CA	MSE	ESE	Total	
PCC 4	BTCVC401	Building Planning and Drawing	2	-	-	20	20	60	100	2
PCC 5	BTCVC402	Environmental Engineering	2	-	-	20	20	60	100	2
PCC 6	BTCVC403	Structural Mechanics - I	2	1	-	20	20	60	100	3
PCC 7	BTCVC404	Water Resources Engineering	3	-	-	20	20	60	100	3
PCC 8	BTCVC405	Hydraulics - II	2	1	-	20	20	60	100	3
PCC 9	BTCVC406	Engineering Geology	2	1	-	20	20	60	100	3
LC 4	BTCVL407	Building Planning and CAD Lab.	-	-	2	20	-	30	50	1
LC 5	BTCVL408	Environmental Engg. Lab.	-	-	2	20	-	30	50	1
LC 6	BTCVL409	HE-II Lab.	-	-	2	20	-	30	50	1
Internship	BTCVP410	Field Training / Internship/Industrial Training (minimum of 4 weeks training in Summer Vacation after Semester IV and appear at examination in Semester V)	-	-	-	-	-	-	-	To be evaluated in V Sem.
Total			13	03	06	180	120	450	750	19

04	BTID405	Product Design Engineering	1	2	-	2
05	CV E1	Elective I	3	-	-	3
06	BTCVC406	Engineering Management	1	-	-	AU
07	BTHM3401	Basic Human Rights	2	-	-	AU
Practical / Drawing and/or Design						
08	BTCVL407	Hydraulics Laboratory II	-	-	2	1
09	BTCVL408	Surveying Laboratory II	-	-	4	2
10	BTCVL409	Mechanics of Solids Laboratory	-	-	2	1
11	BTCVM410	Mini Project	-	-	2	1
12	BTCVF411	Seminar on Topic of Field Visit to works involving Superstructure Construction	-	-	1	1
Sub-Total			14	5	11	
Total			31			21
Elective I						
	BTCVE404A BTCVE404B BTCVE404C	Numerical Methods in Engineering Planning for Sustainable Development Instrumentation & Sensor Technologies for Civil Engineering Applications	3	-	-	3

Semester- V

Sr. No	Subject Code	Subject	Contact Hours			Credit
			L	T	P	
Theory						
01	BTCVC 501	Design of Steel Structures	2	2	-	4
02	BTCVC 502	Structural Mechanics-II	2	1	-	3
03	BTCVC 503	Soil Mechanics	3	1	✓	4
04	BTCVC 504	Environmental Engineering	2	-	✓	2
05	BTCVC 505	Transportation Engineering	2	-	✓	2
06	CV E2	Elective II	3	-	-	3
07	BTHM507	Essence of Indian Traditional Knowledge	1	-	-	AU
Practical / Drawing and/or Design						
08	BTCVL508	Soil Mechanics Laboratory	-	-	2	1
09	BTCVL509	Environmental Engineering Laboratory	-	-	2	1
10	BTCVL510	Transportation Engineering Laboratory	-	-	2	1
11	BTCVS511	Seminar on Topic of Field Visit to works related to Building Services	-	-	1	AU
Sub-Total			15	4	7	
Total			26			21
Elective II						
	BTCVE506A BTCVE506B BTCVE506C BTCVE506D	Materials, Testing & Evaluation Computer Aided Drawing Development Engineering Business Communication & Presentation Skills	3	-	-	3

Semester- VI

\$:Students should register for the CVF 705 in Semester VI to undergo training during vacation after semester VI and appear at examination in Semester VII. Result shall appear in Grade-sheet of Semester VII

Sr. No.	Subject Code	Subject Title	Contact hours			Credit
			L	T	P	
01	BTCVC601	Design of Concrete Structures I	3	1	-	3
02	BTCVC602	Foundation Engineering	2	1	-	3
03	BTCVC603	Concrete Technology	2	-	✓	2
04	BTCVC604	Project Management	2	1	-	2
05	CVE3	Elective III	3	-	-	3
06	BTCVC606	Building Planning and Design	2	-	✓	2
Practical / Drawing and/or Design						
07	BTCVL607	Concrete Technology Laboratory	-	-	2	1
08	BTCVL608	Building Planning, Design and Drawing Laboratory	-	-	4	2
09	BTCVM609	Community Project (Mini Project)	-	-	2	1
10	BTCVS610	Seminar on Topic of Field Visit Road Construction	-	-	1	AU
11	BTCVF611	Industrial Training ^s	-	-	2	--
Sub-Total			14	3	11	
Total			28			19
Elective III						
	BTCVE605A	Waste Water Treatment				
	BTCVE605B	Operations Research				
	BTCVE605C	Geographic Data Analysis and Applications				
	BTCVE605D	Advanced Engineering Geology				
	BTCVE605E	Advanced Soil Mechanics				
	BTCVE605F	Design of Masonry and Timber Structures				

Semester – VII

Sr. No.	Subject Code	Subject Title	Contact hours			Credit
			L	T	P	
01	BTCVC 701	Design of Concrete Structures II	2	1	-	3
02	BTCVC 702	Infrastructure Engineering	3	-	-	3
03	BTCVC 703	Water Resources Engineering	2	1	-	3
04	BTCVC 704	Professional Practices	2	1	✓	3
05	CVE4	Elective IV	3	-	-	3
06	CVE5	Elective V	3	-	-	3
Practical / Drawing and/or Design						
07	BTCVL707	Professional Practices Laboratory	-	-	2	1
08	BTCVL708	Design & Drawing of Steel Structures	-	-	4	2
09	BTCVP709	Project Stage-I	-	-	2	1
10	BTCVF710	Industrial Training	-	-	-	AU
Sub-Total			15	3	08	
Total			26			22
Elective IV						
	BTCVE705A	Plastic Analysis and Design	-	-	-	
	BTCVE705B	Machine Foundations	-	-	-	

	BTCVE705C BTCVE705D BTCVE705E	Modern Surveying Techniques Engineering Economics Ground Improvement Techniques			
Elective V					
	BTCVE706A BTCVE706B BTCVE706C BTCVE706D BTCVE706E BTCVE706F	Advanced Structural Mechanics Town and Urban Planning Construction Economics & Finance Intelligent Transportation Systems Air Pollution Control Tunneling and Underground Excavations	-	-	--

Semester – VIII

Sr. No.	Subject Code	Subject Title	Contact hours			Credit
			L	T	P	
01	BTCVC 801	Introduction to Earthquake Engineering	2	1		3
02	CVE6	Elective VI	3	-		3
03	CVE7	Elective VII	3	-		3
04	CVE8	Elective VIII	3	-		3
Practical / Drawing and/or Design						
05	BTCVL805	Earthquake Engineering Laboratory	-	-	2	1
06	BTCVL806	Design and Drawing of RC Structures	-	-	4	2
07	BTCVF807	Self-Study Report based on field visit to Infrastructure Project Works	-	-	2	1
08	BTCVP808	Project Stage-II	-	-	8	4
		Sub-Total	11	1	16	
		Total	28			20
Elective VI						
	BTCVE802A BTCVE802B BTCVE802C BTCVE802D BTCVE802E	Limit State Design of Steel Structures Construction Techniques Pavement Management System Composite Materials Disaster Preparedness & Planning Management	-	-		-
Elective VII						
	BTCVE803A BTCVE803B BTCVE803C BTCVE803D	Bridge Engineering Structural Audit Design of Hydraulic Structures Environmental Impact Assessment and Life Cycle Analyses	-	-		-
Elective VIII						
	BTCVE804A BTCVE804B BTCVE804C BTCVE804D BTCVE804E	Rock Mechanics Water Power Engineering Water Resources Economics Planning and Management Finite Element Method Repair & Rehabilitation of Structures	-	-		-
Overall Total			50+168 = 218			126

B. Tech. Civil Engineering

Course Structure for Semester VII (Fourth Year) w.e.f. 2020-2021

Course Code	Type of Course	Course Title	Weekly Teaching Scheme			Evaluation Scheme				Credits
			L	T	P	CA	MSE	ESE	Total	
BTCVC701	Core	Design of Concrete Structures - II	2	1	--	20	20	60	100	3
BTCVC702	Core	Infrastructure Engineering	3	--	--	20	20	60	100	3
BTCVC703	Core	Water Resources Engineering	3	1	--	20	20	60	100	4
BTCVC704	Core	Professional Practices	2	1	--	20	20	60	100	3
BTCVE705A	Elective IV	Construction Techniques	3	--	--	20	20	60	100	3
BTCVE705B		Engineering Economics								
BTCVE705C		Finite Element Method								
BTCVE705D		Limit State Design of Steel Structures								
BTCVE705E		Plastic Analysis and Design								
BTCVE705F		Water Power Engineering								
BTCVOE706A	Open Elective V	Advanced Structural Mechanics	3	--	--	--	--	--	--	Audit (AU/ NP)
BTCVOE706B		Air Pollution Control								
BTCVOE706C		Bridge Engineering								
BTCVOE706D		Introduction to Earthquake Engineering								
BTCVOE706E		Town and Urban Planning								
BTCVOE706F		Tunneling and Underground Excavations								
BTCVL707	Laboratory	Design & Drawing of RC & Steel Structures	--	--	2	30	--	20	50	1
BTCVL708	Laboratory	Professional Practices	--	--	2	30	--	20	50	1
BTCVT709	Training	Field Training /Internship/Industrial	--	--	--	--	--	50	50	1
BTCVS710	BTS	Seminar	--	--	2	--	--	50	50	1
BTCVP711	BTP	Project Stage-I**	--	--	6	--	50	50	100	3
Total			16	3	12	160	150	490	800	23

***In case of students opting for Internship and Industry Project in the eighth semester, the Project must be industry-based.*

B. Tech. Civil Engineering
Course Structure for Semester VIII [Fourth Year] w.e.f. 2020-2021

Course Code	Type of Course	Course Title	Weekly Teaching Scheme			Evaluation Scheme [§]				Credits
			L	T	P	CA	MSE	ESE	Total	
BTCVSS801A	(Self-Study Course) #	Characterization of Construction Materials	03**	--	--	20	20	60	100	3
BTCVSS801B		Geosynthetics and Reinforced Soil Structures								
BTCVSS801C		Higher Surveying								
BTCVSS801D		Maintenance and Repair of Concrete Structures								
BTCESS801E		Structural Dynamics								
BTCESS802A	(Self-Study Course) #	Energy Efficiency Acoustics and Daylighting in Building	03**	--	--	20	20	60	100	3
BTCESS802B		Environmental Remediation of Contaminated Sites								
BTCESS802C		Remote Sensing Essentials								
BTCESS802D		Mechanical Characterization of Bituminous Materials								
BTCESS802E		Soil Structure Interaction								
BTCEP803	Project Stage-II	In-house Project or Internship and Project in Industry*	--	--	30	50	--	100	150	15
Total			04	--	30	90	40	220	350	21

The subjects are to be studied on self-study mode using SWAYAM/NPTEL/any other online source approved by the University.

** If required Coordinator may be appointed for each Self study course and an administrative load of 03 hours per week may be considered for monitoring and assisting the students, and to conduct examination (if required), evaluation and preparation of result.

§ If the examination schedule for the online Self study course chosen by student do not match with the University's Academic Schedule, the University/Institute have to conduct exam for such courses.

* Six months of Internship and Project in the Industry. One Faculty guide from the Institute and one Mentor from the Industry should be identified to monitor the progress of work. During the Project/Internship period of work, a review of work should be taken twice followed by a final presentation at the end of Project period.

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6	Open subjects – Electives from other technical and /or emerging subjects	18	--	--	--	--	03	03	06	--	12
7	Project work, seminar and internship in industry or elsewhere	15	--	--	01	--	01	03	01	12	18
8	Mandatory Courses [Environmental Sciences, Induction training, Indian Constitution, Essence of Indian Knowledge Tradition]	NC	--	--	--	--	--	--	--	--	--
	Semester wise credits		18	18	21	21 + 3*	26	23	21	12	160
	Total	160	37	44	45	34					

*over and above of 160 credits

Course Structure for Semester I B. Tech in Mechanical Engineering / B. Tech. in Mechanical Engineering (Sandwich) (w.e.f. 2020-21)

Semester I										
Course Category	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				No. of Credits
			L	T	P	CA	MSE	ESE	Total	
	<i>Mandatory</i>	<i>Induction Program</i>	<i>3-weeks duration in the beginning of the semester</i>							
BSC1	BTBS101	Engineering Mathematics- I	3	1	-	20	20	60	100	4
BSC2	BTBS102	Engineering Physics	3	1	-	20	20	60	100	4
ESC1	BTES103	Engineering Graphics	2	-	-	20	20	60	100	2
HSSMC1	BTHM104	Communication Skills	2	-	-	20	20	60	100	2
ESC2	BTES105	Energy and Environment Engineering	2	-	-	20	20	60	100	2
ESC3	BTES106	Basic Civil and Mechanical Engineering	2	-	-	50	-	-	50	Audit
BSC3	BTBS107L	Engineering Physics Lab	-	-	2	60	-	40	100	1
ESC4	BTES108L	Engineering Graphics Lab	-	-	3	60	-	40	100	2

Dr. Babasaheb Ambedkar Technological University, Lonere

HSSMC2	BTHM109L	Communication Skills Lab	-	-	2	60	-	40	100	1
Total			14	2	7	330	100	420	850	18

Course Structure for Semester II

**B. Tech in Mechanical Engineering / B. Tech. in Mechanical Engineering
(Sandwich) (w.e.f. 2020-21)**

Semester II										
Course Category	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				No. of Credits
			L	T	P	CA	MSE	ESE	Total	
BSC4	BTBS201	Engineering Mathematics-II	3	1	-	20	20	60	100	4
BSC5	BTBS202	Engineering Chemistry	3	1	-	20	20	60	100	4
ESC5	BTES203	Engineering Mechanics	2	1	-	20	20	60	100	3
ESC6	BTES204	Computer Programming	3	-	-	20	20	60	100	3
ESC7	BTES205	Basic Electrical and Electronics Engineering	2	-	-	50	-	-	50	Audit
ESC8	BTES206L	Workshop Practice	-	-	4	60	-	40	100	2
BSC6	BTBS207L	Engineering Chemistry Lab	-	-	2	60	-	40	100	1
ESC9	BTES208L	Engineering Mechanics Lab	-	-	2	60	-	40	100	1
PROJ-1	BTES209P (IT- 1)	Field Training/Industrial Training (minimum of 4 weeks which can be completed partially in first semester and second Semester or in one semester itself)	-	-	-	-	-	-	-	To be evaluated in Sem III
	Mandatory	NSS/NCC/Sports	-	-	-	-	-	-	-	Audit
Total			13	3	8	310	80	360	750	18

Course Structure for Semester III

**B. Tech in Mechanical Engineering / B. Tech. in Mechanical Engineering (Sandwich)
(w.e.f. 2021-22)**

Semester III										
Course Category	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				No. of Credits
			L	T	P	CA	MSE	ESE	Total	
BSC7	BTBS301	Engineering Mathematics – III	3	1	-	20	20	60	100	4
PCC1	BTMC302	Fluid Mechanics	3	1	-	20	20	60	100	4
PCC2	BTMC303	Thermodynamics	3	1	-	20	20	60	100	4
ESC10	BTMES304	Materials Science and Metallurgy	3	1	-	20	20	60	100	4
PCC3	BTMCL305	Machine Drawing and CAD Lab	-	-	4	60	-	40	100	2
PCC4	BTMCL306	Mechanical Engineering Lab – I	-	-	4	60	-	40	100	2
PROJ-1	BTES209P	IT – 1 Evaluation	-	-	-	-	-	100	100	1
		Constitution of India*								Audit
Total			12	4	8	200	80	420	700	21

BSC = Basic Science Course, ESC = Engineering Science Course, PCC = Professional Core Course
 PEC = Professional Elective Course, OEC = Open Elective Course, LC = Laboratory Course
 HSSMC = Humanities and Social Science including Management Courses

Course Structure for Semester IV

**B. Tech in Mechanical Engineering / B. Tech. in Mechanical Engineering (Sandwich)
(w.e.f. 2021-22)**

Semester IV										
Course Category	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				No. of Credits
			L	T	P	CA	MSE	ESE	Total	
PCC 5	BTMC401	Manufacturing Processes – I	3	1	-	20	20	60	100	4
PCC 6	BTMC402	Theory of Machines-I	3	1	-	20	20	60	100	4
HSSMC3	BTHM403	Basic Human Rights	3	-	-	20	20	60	100	3
ESC11	BTMES404	Strength of Materials	3	1	-	20	20	60	100	4
PEC 1	BTMPE405A-C	Elective-I	3	1	-	20	20	60	100	4
PCC7	BTMCL406	Mechanical Engineering Lab-II	-	-	4	60	-	40	100	2
PROJ-2	BTMI407	Field Training /Industrial Training (minimum of 4 weeks which can be completed partially in the third and fourth semester or in one semester itself)	-	-	-	-	-	-	-	Credits to be evaluated in Sem V
Total			15	4	4	160	100	340	600	21

BSC = Basic Science Course, ESC = Engineering Science Course, PCC = Professional Core Course
 PEC = Professional Elective Course, OEC = Open Elective Course, LC = Laboratory Course

B. Tech. Mechanical Engineering

Course Structure for Semester V [Third Year] w.e.f. 2019-2020

Course Code	Type of Course	Course Title	Weekly Teaching Scheme			Evaluation Scheme				Credits
			L	T	P	CA	MSE	ESE	Total	
BTMEC501	PCC 12	Heat Transfer	3	1	--	20	20	60	100	4
BTMEC502	PCC 13	Applied Thermodynamics – I	2	1	--	20	20	60	100	3
BTMEC503	PCC 14	Machine Design – I	2	1	--	20	20	60	100	3
BTMEC504	PCC 15	Theory of Machines- II	3	1	--	20	20	60	100	4
BTMEC505	PCC 16	Metrology and Quality Control	2	1	--	20	20	60	100	3
BTID506	PCC 17	Product Design Engineering - II	1	--	2	60	--	40	100	2
BTMEC506A	OEC 2	Automobile Engineering	3	--	--	--	--	--	--	Audit (AU/ NP)
BTMEC506B		Nanotechnology								
BTMEC506C		Energy Conservation and Management								
BTMEL507	PCC 18	Heat Transfer Lab	--	--	2	30	--	20	50	1
BTMEL508	PCC 19	Applied Thermodynamics Lab	--	--	2	30	--	20	50	1
BTMEL509	PCC 20	Machine Design Practice- I	--	--	2	30	--	20	50	1
BTMEL510	PCC 21	Theory of Machines Lab- II	--	--	2	30	--	20	50	1
BTMEF511	Project 2	Field Training /Internship/Industrial Training II	--	--	--	--	--	50	50	1
Total			16	5	10	280	100	470	850	24

B. Tech. Mechanical Engineering
Course Structure for Semester VI [Third Year] w.e.f. 2019-2020

Course Code	Type of Course	Course Title	Weekly Teaching Scheme			Evaluation Scheme				Credits
			L	T	P	CA	MSE	ESE	Total	
BTMEC601	PCC 22	Manufacturing Processes- II	2	1	--	20	20	60	100	3
BTMEC602	PCC 23	Machine Design-II	3	1	--	20	20	60	100	4
BTMEC603	PCC 24	Applied Thermodynamics- II	2	1	--	20	20	60	100	3
BTMEC604A	PEC 1	Engineering Tribology	2	1	--	20	20	60	100	3
BTMEC604B		IC Engines								
BTMEC604C		Additive Manufacturing								
BTMEC604D		Mechanical Measurements								
BTMEC605A	OEC 3	Quantitative Techniques in Project Management	3	--	--	20	20	60	100	3
BTMEC605B		Sustainable Development								
BTMEC605C		Renewable Energy Sources								
BTMEC606A	OEC 4	Biology for Engineers	3	--	--	--	--	--	--	Audit (AU/ NP)
BTMEC606B		Solar Energy								
BTMEC606C		Human Resource Management								
BTMEL607	PCC 25	Metrology and Quality Control Lab	--	--	2	30	--	20	50	1
BTMEL608	PCC 26	Machine Design Practice-II	--	--	2	30	--	20	50	1
BTMEL609	PCC 27	IC Engine Lab	--	--	2	30	--	20	50	1
BTMEL610	PCC 28	Refrigeration and Air Conditioning Lab	--	--	2	30	--	20	50	1
BTMEM611	Project 3	Technical Project for Community Services	--	--	4	30	--	20	50	2
Total			15	4	12	250	100	400	750	22

B. Tech. Mechanical Engineering
Course Structure for Semester VII [Fourth Year] w.e.f. 2020-2021

Course Code	Type of Course	Course Title	Weekly Teaching Scheme			Evaluation Scheme				Credits
			L	T	P	CA	MSE	ESE	Total	
BTMEC701	PCC 29	Mechatronics	2	1	--	20	20	60	100	3
BTMEC702	PCC 30	CAD/CAM	2	1	--	20	20	60	100	3
BTMEC703	PCC 31	Manufacturing Processes - III	2	1	--	20	20	60	100	3
BTMEC704A	PEC 2	Fluid Machinery	2	1	--	20	20	60	100	3
BTMEC704B		Industrial Engineering and Management								
BTMEC704C		Finite Element Method								
BTMEC704D		Surface Engineering								
BTMEC704E		Refrigeration and Air Conditioning								
BTAMC704C		Automobile Design (Product Design, PLM, CAE, Catia)								
BTMEC705A	OEC 5	Engineering Economics	3	--	--	--	--	--	--	Audit (AU/ NP)
BTMEC705B		Intellectual Property Rights								
BTMEC705C		Wind Energy								
BTMEC705D		Knowledge Management								
BTMEL706	PCC 32	Manufacturing Processes Lab - II	--	--	2	30	--	20	50	1
BTMEL707	PCC 33	Mechatronics Lab	--	--	2	30	--	20	50	1
BTMEL708	PCC 34	CAD/CAM Lab	--	--	2	30	--	20	50	1
BTMES709	Project 4	Seminar	--	--	2	30	--	20	50	1
BTMEF710	Project 5	Field Training /Internship/Industrial Training III	--	--	--	--	--	50	50	1
BTMEP711	Project 6	Project Stage-I**	--	--	6	30	--	20	50	3
Total			11	4	14	230	80	390	700	20

***In case of students opting for Internship in the eighth semester, the Project must be industry-based.*

B. Tech. Mechanical Engineering
Course Structure for Semester VIII [Fourth Year] w.e.f. 2020-2021

Course Code	Type of Course	Course Title	Weekly Teaching Scheme			Evaluation Scheme				Credits
			L	T	P	CA	MSE	ESE	Total	
Choose any two subjects from ANNEXURE-A#			-	-	--	20	20	60	100	3
			-	-	--	20	20	60	100	3
BTMEP803	Project 7	Project Stage-II or Internship and Project*	--	--	30	50	--	100	150	15
Total			--	--	30	90	40	220	350	21

* Six months of Internship in the industry

These subjects are to be studied on self-study mode using SWAYAM/NPTEL/Any other source

Student doing project in Industry will give NPTEL Examination/Examination conducted by the University i.e. CA/MSE/ESE

Students doing project in the Institute will have to appear for CA/MSE/ESE

ANNEXURE-A#
Recommendations of 8th Semester Courses in Self-study Mode from NPTEL/ SWYAM Platform

Sr No	Course Code	Course Name	Duration (Weeks)	Institute Offering Course	Name of Professor
1	BTMEC801A	Fundamentals of Automotive Systems	12 Weeks	IITM	Prof. C. S. Shankar Ram
2	BTMEC801B	Mechanics of Fiber Reinforced Polymer Composite Structures	12 Weeks	IITG	Prof. Debabrata Chakraborty
3	BTMEC801C	Explosions and Safety	12 Weeks	IITM	Prof. K. Ramamurthi
4	BTMEC801D	Material Characterization	12 Weeks	IITM	Prof. Sankaran.S
5	BTMEC801E	Dealing with materials data : collection, analysis and interpretation	12 Weeks	IISc	Prof. M P Gururajan

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY,

**B. Tech in Electronics & Telecommunication Engineering
Curriculum for Second Year**

Semester III

Course Category	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				Credit
			L	T	P	CA	MSE	ESE	Total	
BSC	BTBS301	Engineering Mathematics – III	3	1	-	20	20	60	100	4
PCC 1	BTETC302	Electronic Devices & Circuits	3	1	-	20	20	60	100	4
PCC 2	BTETC303	Digital Electronics	3	1	-	20	20	60	100	4
ESC	BTES304	Electrical Machines and Instruments	3	1	-	20	20	60	100	4
LC	BTETL305	Electronic Devices & Circuits Lab	-	-	2	60	-	40	100	1
LC	BTETL306	Digital Electronics Lab	-	-	2	60	-	40	100	1
Seminar	BTETS307	Seminar I	-	-	4	60	-	40	100	2
Internship	BTES211P	Internship – I Evaluation	-	-	-	-	-	-	-	Audit
Total			12	4	8	260	80	360	700	20

Semester IV

Course Category	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				Credit
			L	T	P	CA	MSE	ESE	Total	
PCC 3	BTETC401	Network Theory	3	1	-	20	20	60	100	4
PCC 4	BTETC402	Signals and Systems	3	1	-	20	20	60	100	4
HSSMC	BTHM403	Basic Human Rights	3	-	-	20	20	60	100	3
BSC	BTBS404	Probability Theory and Random Processes	3	-	-	20	20	60	100	3
PEC 1	BTETPE405	(A) Numerical Methods and Computer Programming	3	1	-	20	20	60	100	4
		(B) Data Compression & Encryption								
		(C) Computer Organization and Architecture								
		(D) Introduction to MEMS								
		(E) Python Programming								
LC	BTETL406	Network Theory Lab & Signals and Systems Lab	-	-	4	60	-	40	100	2
Seminar	BTETS407	Seminar II	-	-	4	60	-	40	100	2
Internship	BTETP408 (Internship – 2)	Field Training /Internship/Industrial Training (minimum of 4 weeks which can be completed partially in third semester and fourth semester or in at onetime).	-	-	-	-	-	-	-	Audit (evaluation will be in V Sem.)
Total			15	3	8	220	100	380	700	22

BSC = Basic Science Course, ESC = Engineering Science Course, PCC = Professional Core Course
 PEC = Professional Elective Course, OEC = Open Elective Course, LC = Laboratory Course
 HSSMC = Humanities and Social Science including Management Courses.

Dr. Babasaheb Ambedkar Technological University, Lonere.

B. Tech (Electronics & Telecommunication Engineering)
Proposed Curriculum for Semester V [Third Year]

Sr. No.	Course Code	Type of Course	Course Title	Hours Per Week			Evaluation Scheme			Total Marks	Credits
				L	T	P	MSE	CA	ESE		
1	BTEXC501	Professional Core Course 1	Electromagnetic Field Theory	2	1	0	20	20	60	100	3
2	BTEXC502	Professional Core Course 2	Control System Engineering	3	0	0	20	20	60	100	3
3	BTETC503	Professional Core Course 3	Computer Architecture	3	0	0	20	20	60	100	3
4	BTEXC504	Professional Core Course 4	Digital Signal Processing	2	1	0	20	20	60	100	3
5	BTEXC505	Professional Core Course 5	Microcontroller and its Applications	3	0	0	20	20	60	100	3
6	BTEXPE506A	Program Elective Course 1	Probability Theory and Random Processes	3	0	0	20	20	60	100	3
	BTEXPE506B		NSQF (Level 7 Course)								
	BTEXPE506C		Data Structure & Algorithms Using Java Programming								
	BTEXPE506D		Introduction to MEMS								

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7	BTETL507	Control System Engineering Lab	0	0	2	--	30	20	50	1
8	BTETL508	Digital Signal Processing Lab	0	0	2	--	30	20	50	1
9	BTETL509	Microcontroller and its Applications Lab	0	0	2	--	30	20	50	1
10	BTETP510	Mini Project	0	0	2	--	30	20	50	1
11	BTETS511	Seminar	0	0	2	--	30	20	50	1
12	BTEXF412	Field Training/ Internship/Industrial Training Evaluation	--	--	--	--	--	50	50	1
Total			16	02	10	120	270	510	900	24

Dr. Babasaheb Ambedkar Technological University, Lonere.

**B. Tech (Electronics & Telecommunication Engineering)
Proposed Curriculum for Semester VI [Third Year]**

Sr. No.	Course Code	Type of Course	Course Title	Hours Per Week			Evaluation Scheme			Total Marks	Credits
				L	T	P	MSE	CA	ESE		
1	BTETC601	Professional Core Course 1	Antennas and Wave Propagation	3	0	0	20	20	60	100	3
2	BTETC602	Professional Core Course 2	Computer Network & Cloud Computing	3	0	0	20	20	60	100	3
3	BTETC603	Professional Core Course 3	Digital Image Processing	3	0	0	20	20	60	100	3
4	BTETPE604A	Program Elective Course 2	CMOS Design	3	0	0	20	20	60	100	3
	BTETPE604B		Information Theory and Coding								
	BTETPE604C		Power Electronics								
	BTETPE604D		Nano Electronics								
	BTETPE604E		NSQF (Level 7 Course)								
	BTETPE604F		Android Programming								
5	BTETOE605A	Open Elective Course 1	Digital System Design	3	0	0	20	20	60	100	3
	BTETOE605B		Optimization Techniques								
	BTETOE605C		Project Management and Operation Research								

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	BTETOE605D		Augmented, Virtual and Mixed Reality								
	BTETOE605E		Python Programming								
	BTETOE605F		Web Development and Design								
6	BTHM606	Humanities & Social Science including Management Courses	Employability & Skill Development	2	0	0	20	20	60	100	2
7	BTETL607	Computer Network & Cloud Computing Lab		0	0	2	--	30	20	50	1
8	BTETL608	Program Elective 2 Lab		0	0	2	--	30	20	50	1
9	BTETL609	Open Elective 1 Lab		0	0	2	--	30	20	50	1
10	BTETP610	Mini-project		0	0	2	--	30	20	50	1
11	BTETF611	Field Training/ Internship/ Industrial Training (Minimum 4 weeks)		--	--	--	--	--	--	--	1* (To be evaluated in VII th Semester)
Total				17	0	8	120	240	440	800	21

Dr. Babasaheb Ambedkar Technological University, Lonere.

Program Elective 2	Open Elective 1
(A) CMOS Design	(A) Digital System Design
(B) Information Theory and Coding	(B) Optimization Techniques
(C) Power Electronics	(C) Project Management and Operation Research
(D) Nano Electronics	(D) Augmented, Virtual and Mixed Reality
(E) NSQF (Level 7 Course)	(E) Python Programming
(F) Android Programming	(F) Web Development and Design

* To be evaluated in VIIth Semester

Dr. Babasaheb Ambedkar Technological University, Lonere.

B. Tech (Electronics & Telecommunication Engineering)
Proposed Curriculum for Semester VII [Final Year]

Sr. No.	Course Code	Type of Course	Course Title	Hours Per Week			Evaluation Scheme			Total Marks	Credits
				L	T	P	MSE	CA	ESE		
1	BTETC701	Professional Core Course 1	Digital Communication	3	0	0	20	20	60	100	3
2	BTETPE702	Program Elective 3	Group A	3	0	0	20	20	60	100	3
3	BTETPE703	Program Elective 4	Group B	3	0	0	20	20	60	100	3
4	BTETPE704	Program Elective 5	Group C	3	0	0	20	20	60	100	3
5	BTHM705	Humanities & Social Science including Management Courses	Financial Management	2	0	0	20	20	60	100	2
6	BTETL706	Program Elective 3 Lab		0	0	2	--	30	20	50	1
7	BTETL707	Program Elective 4 Lab		0	0	2	--	30	20	50	1
8	BTETL708	Program Elective 5 Lab		0	0	2	--	30	20	50	1
9	BTETP709	Project Part I		0	0	8	--	50	50	100	4
10	BTETF611	Field Training/ Internship/Industrial Training Evaluation		--	--	--	--	--	50	50	1
Total				14	0	14	100	240	460	800	22

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Program Elective - 3 (Group A)	Program Elective -4 (Group B)	Program Elective- 5 (Group C)
(A) Microwave Theory & Techniques	(A) Embedded System Design	(A) Consumer Electronics
(B) RF Circuit Design	(B) Artificial Intelligence Deep learning	(B) Analog Integrated Circuit Design
(C) Satellite Communication	(C) VLSI Design & Technology	(C) Soft Computing
(D) Fiber Optic Communication	(D) Data Compression & Encryption	(D) Advance Industrial Automation-1
(E) Wireless Sensor Networks	(E) Big Data Analytics	(E) Mechatronics
(F) Mobile Computing	(F) Cyber Security	(F) Electronics in Smart City

B. Tech (Electronics & Telecommunication Engineering)
Course Structure for Semester VIII [Fourth Year] w.e.f. 2020-2021

Course Code	Type of Course	Course Title	Weekly Teaching Scheme			Evaluation Scheme				Credits
			L	T	P	MSE	CA	ESE	Total	
<ul style="list-style-type: none"> • Introduction to Internet of Things • Computer Vision and Image Processing • Biomedical Signal Processing • Industrial Automation and Control • Cryptography and Network Security • Digital IC Design 			3	-	--	20*	20*	60*	100	3
			3	-	--	20*	20*	60*	100	3
BTMEP803		Project Part-II or Internship*	--	--	30	--	--	100	150	15
Total			--	--				220	350	21

* Six months of Internship in the industry

*Students doing project at institute will have to appear for CA/MSE/ESE

* Student doing project at Industry will give NPTEL examination / Examination conducted by university i.e. CA/MSE/ESE

These subjects are to be studied on self –study mode using SWAYAM/NPTEL/Any other source

Teacher who work as a facilitator for the course should be allotted 3 hrs/week load.

Project Load: 2hrs/week/project.

Mapping of Courses with MOOCs Platform SWYAM / NPTEL

No	Course Name	Duration (Weeks)	Institute Offering Course	Name of Professor
1	Introduction to internet of things	12	IIT Kharagpur	Prof. Sudip Misra
2	Computer Vision and Image Processing	12	IIT Gandhinagar	Prof. M. K. Bhuyan
3	Biomedical Signal Processing	12	IIT Kharagpur	Prof. Sudipta Mukhopadhyay
4	Industrial Automation and Control	12	IIT Kharagpur	Prof. Siddhartha Mukhopadhyay
5	Cryptography & Network Security	12	IIT Kharagpur	Prof. Sourav Mukhopadhyay
6	Digital IC Design	12	IIT Madras	Prof. Janakiraman

Dr. Babasaheb Ambedkar Technological University, Lonere.

B.Tech (Electrical Engineering / Electrical Engineering (Electronics and Power)/ Electrical & Electronics Engg / Electrical & Power Engineering)

Curriculum of Second Year

Semester III

Course Category	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				Credit
			L	T	P	CA	MSE	ESE	Total	
BSC	BTBS301	Engineering Mathematics-III	3	1	-	20	20	60	100	4
PCC1	BTEEC302	Electrical Machines-I	3	1	-	20	20	60	100	4
PCC2	BTEEC303	Electrical and Electronics Measurement	3	1	-	20	20	60	100	4
HSSMC	BTHM304	Basic Human Rights	2	-	-					Audit
ESC	BTES305	Engineering Material Science	3	-	-	20	20	60	100	3
LC	BTEEL306	Electrical Machines-I Lab			2	60		40	100	1
LC	BTEEL307	Electrical and Electronics Measurement Lab			2	60		40	100	1
Project	BTEEP308	Mini Project-I			4	60		40	100	2
Internship	BTES211P	Internship-I Evaluation						50	50	1
			14	3	8	260	80	410	750	20

Semester IV

Course Category	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				Credit
			L	T	P	CA	MSE	ESE	Total	
PCC3	BTEEC401	Network Theory	3	1	-	20	20	60	100	4
PCC4	BTEEC402	Power System	3	1	-	20	20	60	100	4
PCC5	BTEEC403	Electrical Machine-II	3	1	-	20	20	60	100	4
BSC	BTBS404	Analog and Digital Electronics	3	-	-	20	20	60	100	3
PEC1	BTEEPE405	Group A	3	-	--	20	20	60	100	3
LC	BTEEL406	Network Theory Lab	-	-	2	30		20	50	1
LC	BTEEL407	Power System Lab	-	-	2	30		20	50	1
LC	BTEEL408	Electrical Machine-II Lab	-	-	2	30		20	50	1
LC	BTEEL409	Analog and Digital Electronics lab	-	-	2	30		20	50	1
Internship	BTEEP410	Internship-II (minimum of 4 weeks which can be completed partially in third or fourth semester or in at one time)	-	-	-	-	-	-	-	-
						220	100	380	700	22

Group-A

- (A) Electromagnetic Field Theory
- (B) **Signals and System**
- (C) Advance Renewable Energy Sources
- (D) **Electronic Devices and Circuits**

Teaching & Evaluation scheme of Third year B. Tech. Electrical Engineering / Electrical Engineering (Electronics and Power)/ Electrical & Electronics Engg / Electrical & Power Engg .

V Semester

Course Code	Course Name	Teaching Scheme			Evaluation Scheme				Credits
		L	P	T	Int	MSE	ESE	Total	
BTEEC501	Electrical Machine-II	3	0	1	20	20	60	100	4
BTEEC502	Power System-II	3	0	1	20	20	60	100	4
BTEEL503	Microprocessor and micro Controller	3	0	0	20	20	60	100	3
BTHM504	Value Education, Human Rights and Legislative Procedures [MOOC/Swayam/NPTEL]	2	0	0	-	-	-	Audit course	0
BTEEE505	Elective-IV	3	0	0	20	20	60	100	3
BTEEOE506	Elective-V	3	0	0	20	20	60	100	3
BTEEL507	Electrical Machine-II Lab	0	4	0	60	-	40	100	2
BTEEL508	Power System-II Lab	0	2	0	30	-	20	50	1
BTEEL509	Microprocessor and micro Controller Lab	0	2	0	30	-	20	50	1
BTEEF510	Industrial Training	-	-	-	50	-	-	50	1
	Total	17	08	02	270	100	380	750	22

Elective- IV: 1.Illumination engineering 2. Advances in Renewable Energy Sources. 3. Testing and Maintenance of Electrical equipment.

Elective-V: 1.Electrical Mobility. 2 Power Plant Engineering. 3. Design and Analysis of Algorithms

VI semester

Course Code	Course Name	Teaching Scheme			Evaluation Scheme				Credits
		L	P	T	Int	MSE	ESE	Total	
BTEEC601	Control System	3	0	1	20	20	60	100	4
BTEEC602	Principles of Electrical Machine Design	3	0	0	20	20	60	100	3
BTEEC603	Power Electronics	3	0	1	20	20	60	100	4
BTEEE604	Elective-VI	3	0	0	20	20	60	100	3
BTEEC605	Elective-VII	3	0	0	20	20	60	100	3
BTEEOE606	Elective-VIII [MOOC/Swayam/NPTEL]	3	0	0	20	20	60	100	3
BTEEL607	Control System- Lab	0	2	0	30	-	20	50	1
BTEEL608	Principles of Electrical Machine Design Lab	0	2	0	30	-	20	50	1
BTEEL609	Power Electronics Lab	0	4	0	60	-	40	100	2
	Total	18	08	02	240	120	440	800	24

Elective-VI Industrial automation and Control 2. Design of Experiments 3. Artificial neural network.

Elective-VII 1. Switch Gear and Protection 2. Computer aided analysis and design 3. Mechatronics

Elective- VIII. 1. Rural Technology and Community Development. 2. Project Management 3. Knowledge Management

Dr. Babasaheb Ambedkar Technological University, Lonere.

**B.Tech (Electrical Engineering / Electrical Engineering (Electronics and Power)/
Electrical & Electronics Engg / Electrical & Power Engineering)**

Curriculum for Semester VII [Final Year]

Sr. No.	Course Code	Type of Course	Course Title	Hours per week			Evaluation Scheme			Total Marks	Credits
				L	T	P	MSE	CA	ESE		
1	BTEEC701	PCC1	Power System Operation & Control	3	0	0	20	20	60	100	3
2	BTEEC702	PCC2	High Voltage Engineering	3	0	0	20	20	60	100	3
3	BTEEC703	PCC3	Electrical Drives	3	0	0	20	20	60	100	3
4	BTEEE704	PEC1	Elective-IX	3	0	0	20	20	60	100	3
5	BTEEE705	PEC2	Elective-X	3	0	0	20	20	60	100	3
6	BTEEL706	Lab	Power System Operation & Control Lab	0	0	2	--	30	20	50	1
7	BTEEL707	Lab	High Voltage Engineering Lab	0	0	2	--	30	20	50	1
8	BTEEL708	Lab	Electrical Drives Lab	0	0	2	--	30	20	50	1
9	BTEES709	Seminar	Seminar	0	0	2	--	30	20	50	1
10	BTEEP710	Project	Project Part-I	0	0	6	--	30	20	50	3
11	BTEEF711	--	Field Training /Internship/Industrial Training III	--	--	--	--	--	50	50	1
Total				15	0	14	100	250	450	800	23

Elective-IX	Elective-X
A) Special Purpose Electrical Machines	A) Digital Signal Processing
B) Electrical Traction and Utilization	B) Energy Audit and Conservation
C) Engineering System Design and Optimization	C) Electrical Power Quality
D) Financial Management	D) HVDC Transmission and FACTS

Dr. Babasaheb Ambedkar Technological University, Lonere.

**B.Tech (Electrical Engineering / Electrical Engineering (Electronics and Power)/
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Curriculum for Semester VIII [Final Year]

Sr. No.	Course Code	Course Title	Hours per week			Evaluation Scheme			Total Marks	Credits
			L	T	P	MSE	CA	ESE		
		1.Power Management Integrated Circuits 2.DC Power Transmission Systems 3.High Power Multilevel Converters 4.Fuzzy Sets, Logic and Systems & Applications 5.The Joy of Computing using Python 6.Introduction to Industry 4.0 and Industrial Internet of Things 7.Entrepreneurship Essentials # Student to opt any two subjects from above list	3	0	0	20*	20*	60*	100	3
			3	0	0	20*	20*	60*	100	3
6	BTEEP803	Project - II	0	0	30	--	100	150	250	15
		Total	6	0	30	40	240	270	450	21

* Six months of Internship in the industry

*Students doing project at institute will have to appear for CA/MSE/ESE

* Student doing project at Industry will give NPTEL examination / Examination conducted by university i.e. CA/MSE/ESE

These subjects are to be studied on self –study mode using SWAYAM/NPTEL/Any other source

Teacher who work as a facilitator for the course should be allotted 3 hrs/week load.

Project Load: 2hrs/week/project.

Mapping of Courses with MOOCs Platform SWYAM / NPTEL

S.N.	Course Name	Duration	Name of Professor	Institute offering Course
1	Power Management Integrated Circuits	12 Weeks	Prof. Qadeer Ahmad Khan	IITM
2	DC Power Transmission Systems	12 Weeks	Prof. Krishna S	IITM
3	High Power Multilevel Converters	12 Weeks	Prof. Anandarup Das	IITD
4	Fuzzy Sets, Logic and Systems & Applications	12 Weeks	Prof. Nishchal Kumar Verma	IITK
5	The Joy of Computing using Python	12 Weeks	Prof. Sudarshan Iyengar Prof. Yayati Gupta	IIT Ropar
6	Introduction to Industry 4.0 and Industrial Internet of Things	12 Weeks	Prof. Sudip Misra	IIT KGP
7	Entrepreneurship Essentials	12 Weeks	Prof. Manoj Kumar Mondal	IIT KGP

ELECTRICAL ENGINEERING DEPARTMENT
Proposed Teaching and Examination Scheme for
M. Tech. (Electrical Engineering) w. e. f. July 2017

SEMESTER I

Subject Code	Name of the Subject	Teaching Scheme (Hours/Week)			Credit	Examination Scheme				
		L	T	P		Theory		CA	PR/OR	Total
						TH	Tests			
MTEE101	Power System Modeling	03	01	--	04	60	20	20	--	100
MTEE102	Advanced Power Electronics	03	01	--	04	60	20	20	--	100
MTEE103	Modern Control System	03	01	--	04	60	20	20	--	100
MTEE104	Elective-I	03	-	--	03	60	20	20	--	100
MTEE105	Elective-II	03	-	--	03	60	20	20	-	100
MBS106	Communication Skills	02	-	--	02	-	-	25	25	50
MTEE107	PG Lab-I	--	-	03	02			25	25	50
	Total	17	03	03	22	300	100	150	50	600

Elective-I MTCS104 1) Advanced Topics in Power System 2) Renewable Energy Systems 3) Advanced Digital Signal Processing	Elective-II MTCS105 1) Electrical Transients in Power System 2) Power Electronics for Renewable Energy Systems 3) Power Electronics and Control
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SEMESTER II

Subject Code	Name of the Subject	Teaching Scheme (Hours/Week)			Credit	Examination Scheme				
		L	T	P		Theory		CA	PR/OR	Total
						TH	Tests			
MTEE201	AC /DC drives	03	01	--	04	60	20	20	--	100
MTEE202	Advance Power System Protection	03	01	--	04	60	20	20	--	100
MTEE203	Elective-III	03	-	--	03	60	20	20	--	100
MTEE204	Elective-IV	03	-	--	03	60	20	20	--	100
MTEE205	Elective-V (Open)	03	-	--	03	60	20	20	-	100
MTEE206	Seminar-I	--	-	04	02	-	-	50	50	50
MTEE07	PG Lab-II or Mini Project	--	-	04	02	-	-	50	50	50
	Total	15	02	08	21	300	100	200	100	700

Elective-III MTCS203 1) Power Sector Economics Restructuring & Regulation 2) Distributed generation and micro grid 3) Embedded Systems	Elective-IV MTCS204 1) Application of Power Electronics to Power System 2) Electric and Hybrid Vehicles 3) Control System design and estimation	Elective-V MTCS205 1) Modern Optimization Techniques. 2) Sustainable energy system 3) Energy Management and Auditing. 4) Energy storage system. 5) Research Methodology 6) Finance management 7) Intelligent systems
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P.S. Any other course approved by BoS for elective.

M. Tech. (ELECTRICAL ENGINEERING)

SEMESTER-III

Subject Code	Name of the Subject	Teaching Scheme (Hours/Week)			Credit	Examination Scheme				
		L	T	P		Theory		CA	PR/OR	Total
						TH	Tests			
MTME301	Project Management and Intellectual Property Rights (Self Study)*	--	--	--	02	--	--	50	50	100
MTEE302	Project work Phase-I	--	--	--	14	--	--	50	50	100
	Total	--	--	--	16	--	--	100	100	200

SEMESTER-IV

Subject Code	Name of the Subject	Teaching Scheme (Hours/Week)			Credit	Examination Scheme				
		L	T	P		Theory		CA	PR/OR	Total
						TH	Tests			
MTEE401	Project work Phase-II	--	--	--	28	--	--	100	100	200
	Total	--	--	--	28	--	--	100	100	200

**MASTER OF TECHNOLOGY
(Mechanical Engineering)**

Syllabus with effect from July 2018

Semester-I

Course Code	Type of Course	Name of the Course	Hours/Week			Credit	Examination Scheme				
			L	T	P		Theory		CA	PR/OR	Total
							TH	Test			
MMECH11	PCC	Engineering Thermodynamics	3	1	--	4	60	20	20	--	100
MMECH12	PCC	Machining and Forming Processes	3	1	--	4	60	20	20	--	100
MMECH13	PCC	Mechanical Vibrations	3	1	--	4	60	20	20	--	100
MDE14A	Elective I	Advanced Machine Design	3	--	--	3	60	20	20	--	100
MTE14B		Utilization of Solar Energy									
MTE14C		Advanced I.C. Engines									
MME14D		Additive Manufacturing									
MMECH15A	Elective II	Manufacturing Planning and Control	3	--	--	3	60	20	20	--	100

ME-XX15C		Hydraulic, Pneumatic and Fluidic Control										
MTE15D		Wind Energy										
MME15E		Finite Element Method										
BSH16	HSMC	Communication Skills	2	--	--	2	--	--	25	25	50	
MMECH17	PCC	Mechanical Engineering Lab	--	--	3	2	--	--	25	25	50	
Total			17	3	3	22	300	100	150	50	600	

Semester-II

Course Code	Type of Course	Name of the Course	Hours/Week			Credit	Examination Scheme				
			L	T	P		Theory		CA	PR/OR	Total
							TH	Test			
MMECH21	PCC	Advanced Fluid Mechanics and Heat Transfer	3	1	--	4	60	20	20	--	100
MMECH22	PCC	Mechanical Design Analysis	3	1	--	4	60	20	20	--	100
MMECH23A	Elective III	Numerical Methods and Computational Techniques	3	--	--	3	60	20	20	--	100
ME-XX23B		CAD- CAE									
MTE23B		Computational Fluid Dynamics									
MTE23C		Advanced Refrigeration									
MTE23D		Design of Heat Exchangers									
MTE23E		Alternative Fuels for I.C. Engines									
MTE24A	Elective IV	Steam and Gas Turbines	3	--	--	3	60	20	20	--	100
MME24B		Surface Engineering									
MTE24B		Cryogenic Engineering									

MMECH24C		Nanotechnology									
MME24F		World Class Manufacturing									
MOE25A	Elective V	Research Methodology	3	--	--	3	60	20	20	--	100
MOE25B		Design of Experiments									
MOE25C		Advanced Optimization Techniques									
MOE25D		Environmental Engineering and Pollution Control									
MOE25E		Soft Computing Techniques									
MOE25F		Manufacturing Automation									
MOE25G		Modeling and Simulation									
MMECH26	PCC	Seminar	--	4	--	2	--	--	50	50	100
MMECH27	PCC	Mini Project	--	--	4	2	--	--	50	50	100
Total			15	6	4	21	300	100	200	100	700

Semester-III

Course Code	Type of Course	Name of the Course	Hours/Week			Credit	Examination Scheme				
			L	T	P		Theory		CA	PR/OR	Total
							TH	Test			
MMECH31	PCC	Project Management (Self Study Course)	--	--	--	2	--	--	50	50	100
MMECH32		OR Intellectual Property Rights (Self Study Course)	--	--	--	2	--	--	50	50	100
MMECH33	PCC	Project Stage -I	---	--	--	10	--	--	50	50	100
Total			---	--	--	12	--	--	100	100	200

Semester-IV

Course Code	Type of Course	Name of the Course	Hours/Week			Credit	Examination Scheme				
			L	T	P		Theory		CA	PR/OR	Total
							TH	Test			
MMECH41	PCC	Project Stage -II	---	--	--	20	--	--	100	100	200
Total			---	--	--	20	--	--	100	100	200